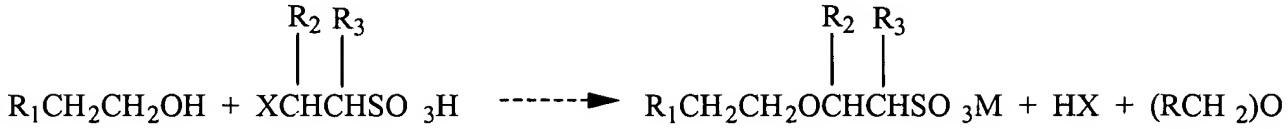
What is claimed is:

1) A process for producing an alcohol ether sulfonate by reacting an alcohol with isethionic acid according to the reaction:



in which:

R_1 is independently any straight-chain, branched, or cyclic, saturated or unsaturated, hydrocarbyl moiety that is selected from the group consisting of: 1) any C_5-C_{19} alkyl group; 2) any C_5-C_{19} aryl group; 3) any C_5-C_{19} alkylaryl group; 4) any $R_4(CH_2CH_2O)_n$ -- group, in which R_4 is any C_3-C_{24} alkyl, aryl, or alkylaryl group, whether straight-chain, branched, or cyclic, saturated or unsaturated, and in which n independently has any value between about 2 and 25;

R_2 and R_3 are each independently selected from the group consisting of: hydrogen, methyl and ethyl;

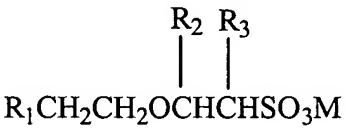
X is selected from the group consisting of: chlorine, bromine, or hydroxy; and

M is selected from the group consisting of: Na, K, Li, Ca, Mg, and hydrogen,

by contacting the isethionic acid or its halo-derivative and the primary alcohol at any temperature in the range of about 60°C to about 200° C, and at any pressure in the range of between about 50 and 760 mm Hg.

2) A composition of matter useful for cleaning hard surfaces, laundry, and the human body comprising:

a) a first component which comprises an anionic form of the alcohol ether sulfonate described by the formula:



in which R_1 is independently any straight-chain, branched, or cyclic, saturated or unsaturated, hydrocarbyl moiety that is selected from the group consisting of: 1) any C_5-C_{19} alkyl group; 2) any C_5-C_{19} aryl group; 3) any C_5-C_{19} alkylaryl group; 4) any $R_4(CH_2CH_2O)_n$ -- group, in which R_4 is any C_3-C_{24} alkyl, aryl, or alkylaryl group, whether straight-chain, branched, or cyclic, saturated or unsaturated, and in which n independently has any value between about 2 and 25; R_2 and R_3 are each independently selected from the group consisting of: hydrogen, methyl and ethyl; and M is selected from the group consisting of: Na, K, Li, Ca, Mg, and hydrogen; and

b) a second component selected from the group consisting of: fatty acids, alkyl sulfates, ethanolamines, amine oxides, alkali carbonates, water, ethanol, isopropanol, pine oil, sodium chloride, sodium silicate, polymers, alcohol alkoxylates, zeolites, perborate salts, alkali sulfates, enzymes, hydrotropes, dyes, fragrances, preservatives, brighteners, builders, polyacrylates, essential oils, alkali hydroxides, ether sulfates, alkylphenol ethoxylates, fatty acid amides, alpha olefin sulfonates, paraffin sulfonates, betaines, chelating agents, tallowamine ethoxylates, polyetheramine ethoxylates, ethylene oxide/propylene oxide block copolymers, alcohol ethylene oxide/propylene oxide low foam surfactants, methyl ester sulfonates, alkyl polysaccharides, N-methyl glucamides, alkylated sulfonated diphenyl oxide, and water soluble alkylbenzene

sulfonates or alkyltoluene sulfonates, regardless of their 2-phenyl isomer content or degree of branching or linearity in the alkyl chain.